

## LAMPIRAN

### Lampiran 1. Prosedur Pengujian Kadar Air Telur Asin (AOAC, 2005)

Pengukuran kadar air pada telur asin dilakukan dengan metode pengeringan oven.

1. Cawan porselin yang sudah diberi kode sesuai sampel dipanaskan dalam oven dengan suhu 100-105 °C selama  $\pm 1$  jam
2. Diambil cawan porselin lalu dimasukkan kedalam desikator selama  $\pm 15$  menit, kemudian cawan porselin ditimbang.
3. Ditimbang sampel sebanyak 2 gr dalam cawan porselin yang sudah diketahui beratnya.
4. Dikeringkan sampel didalam oven pada suhu 100-105 °C selama 12 jam.
5. Setelah sampel dioven, lalu sampel diambil selanjutnya dimasukkan di dalam eksikator  $\pm 15$  menit, dilanjutkan dengan penimbangan.
6. Dilakukan pengeringan sampai diperoleh berat konstan.

*Rumus Kadar Air*

$$= \frac{(b. \text{cawan} + b. \text{sampel}) - (b. \text{cawan} + b. \text{sampel setelah dioven})}{\text{berat bersih}} \times 100\%$$

## **Lampiran 2. Prosedur Pengujian Aktivitas Air Telur Asin (AOAC, 2005)**

1. Dikalibrasi  $A_w$  meter dengan memasukkan cairan  $BaCl_2 \cdot 2H_2O$ , kemudian ditutup dan dibiarkan selama 3 menit sampai angka pada skala pembacaan  $A_w$  menjadi 0,9.
2. Setelah didiamkan, dibuka dan tempat sampel dibersihkan.
3. Sampel dimasukkan dan alat ditiup ditunggu hingga 3 menit.
4. Setelah 3 menit, skala  $A_w$  dibaca dan dicatat (Perhatikan skala temperatur untuk faktor koreksi)

### **Lampiran 3. Prosedur Pengujian Warna $L^*a^*b^*$ Telur Asin (Bansal, 2012)**

1. Disiapkan sampel dan *Color reader* dinyalakan.
2. Ditentukan target pembacaan  $L^*a^*b^*$  *color space* atau  $L^*$ ,  $C^*$  dan  $h^*$ .
3. Kemudian warna diukur, dibaca logika untuk parameter kecerahan warna (*Lightness*).  $A$  dan  $b$  koordinat kromatis,  $C$  kroma dan  $h$  sudut *hue*.
4. Dicatat hasil yang tertera pada layar *color reader*.

#### **Lampiran 4. Prosedur Pengujian Aktivitas Antioksidan dan Penentuan IC<sub>50</sub> Telur Asin menurut Tristantini dkk. (2016) dengan Modifikasi**

##### **A. Pengujian Aktivitas Antioksidan**

1. Siapkan 5 sampel ekstrak yang memiliki variasi waktu ekstraksi yaitu 15 menit, 30 menit, 45 menit, 60 menit dan 75 menit. Kemudian larutan induk dibuat masing-masing sampe sebesar 100 ppm dengan melarutkan 10 mg ekstrak pada 100 ml methanol PA.
2. Melakukan pengenceran menggunakan pelarut methanol PA dengan membuat variasi konsentrasi yaitu 5 ppm, 6 ppm, 7 ppm, 8 ppm dan 9 ppm pada tiap masing-masing sampel.
3. Siapkan larutan *stock* DPPH 50 ppm. Larutan *stock* DPPH dibuat dengan melarutkan 5 mg padatan DPPH kedalam 100 ml methanol PA.
4. Disiapkan larutan pembanding yaitu kontrol yang berisi 2 ml methanol PA 1 ml larutan DPPH 50 ppm. Untuk sampel uji, disiapkan masing-masing 2 ml larutan sampel dan 2 ml larutan DPPH.
5. Diinkubasi selama 30 menit pada suhu 27<sup>0</sup> hingga terjadi perubahan warna dari aktivitas DPPH, semua sampel dibuat triplo.
6. Semua sampel yang sudah di inkubasi di uji nilai absorbansinya menggunakan spektrofotometer Uv-vis pada Panjang gelombang 517 nm.

## **B. Penentuan Nilai IC50**

1. Analisis pengujian aktivitas antioksidan metode DPPH dilakukan dengan melihat perubahan warna masing-masing
2. Sampel setelah diinkubasi Bersama DPPH. Jika semua electron DPPH berpasangan dengan electron pada sampel ekstrak maka akan terjadi perubahan warna sampel dimulai dari ungu tua hingga kuning terang.
3. Kemudian sampel diukur nilai absorbansinya menggunakan spektrofotometer Uv-vis pada Panjang gelombang 517 nm.

**Lampiran 5. Data dan Analisis Statistik Kadar Air Putih  
Telur Asin dengan Penambahan Daun  
Kenikir (*Cosmos caudatus*)**

**a. Hasil Pengamatan**

| Perlakuan<br>(t) | Ulangan (r) |       |       | Jumlah  | Rataan | SD   |
|------------------|-------------|-------|-------|---------|--------|------|
|                  | 1           | 2     | 3     |         |        |      |
| <b>P0</b>        | 85,43       | 84,98 | 85,61 | 256,02  | 85,34  | 0,32 |
| <b>P1</b>        | 84,36       | 85,87 | 84,82 | 255,05  | 85,02  | 0,77 |
| <b>P2</b>        | 84,96       | 84,51 | 84,48 | 253,95  | 84,65  | 0,27 |
| <b>P3</b>        | 84,37       | 84,78 | 83,71 | 252,86  | 84,29  | 0,54 |
| <b>P4</b>        | 83,67       | 84,23 | 83,64 | 251,54  | 83,85  | 0,33 |
| <b>Jumlah</b>    |             |       |       | 1269,42 |        |      |

➤ **Uji Rancangan Acak Lengkap**

• **Faktor Koreksi (FK)**

$$\begin{aligned}
 FK &= (\sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij})^2 / t \cdot r \\
 &= (1269,42)^2 / 5 \times 3 \\
 &= 107428,50
 \end{aligned}$$

• **Jumlah Kuadrat (JK)**

$$\begin{aligned}
 JK_{\text{Total}} &= \sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij}^2 - FK \\
 &= (85,43^2 + 84,98^2 + \dots + 83,64^2) - 107428,50 \\
 &= 107435,00 - 107428,50 \\
 &= 6,513
 \end{aligned}$$

$$\begin{aligned}
 JK_{\text{Perlakuan}} &= \sum_{i=1}^t \cdot (\sum_{j=1}^r Y_{ij})^2 / r - FK \\
 &= (256,02^2 + \dots + 251,54^2) / 3 - 107428,50 \\
 &= 107432,60 - 107428,50 \\
 &= 4,156
 \end{aligned}$$

$$\begin{aligned}
 JK_{\text{Galat}} &= JK_{\text{Total}} - JK_{\text{Perlakuan}} \\
 &= 6,513 - 4,156 \\
 &= 2,357
 \end{aligned}$$

- **Kuadrat Tengah (KT)**

$$\begin{aligned}
 KT_{\text{Perlakuan}} &= JK_{\text{Perlakuan}}/dB_{\text{Perlakuan}} \\
 &= 4,156/(t-1) \\
 &= 4,156/(5-1) \\
 &= 1,039
 \end{aligned}$$

$$\begin{aligned}
 KT_{\text{Galat}} &= JK_{\text{Galat}}/dB_{\text{Galat}} \\
 &= 2,357/t(r-1) \\
 &= 2,357/5(3-1) \\
 &= 0,236
 \end{aligned}$$

$$\begin{aligned}
 F_{\text{Hitung}} &= KT_{\text{Perlakuan}}/KT_{\text{Galat}} \\
 &= 1,039/0,236 \\
 &= 4,409
 \end{aligned}$$

**Tabel Analisis Ragam**

| SK               | dB | JK    | KT    | F Hitung | F 0,05 | F 0,01 |
|------------------|----|-------|-------|----------|--------|--------|
| <b>Perlakuan</b> | 4  | 4,156 | 1,039 | 4,409*   | 3,478  | 5,994  |
| <b>Galat</b>     | 10 | 2,357 | 0,236 |          |        |        |
| <b>Total</b>     | 14 | 6,513 |       |          |        |        |

Keterangan:  $F_{\text{Hitung}} > F_{\text{Tabel}} (0,05)$ , maka penggunaan daun kenikir memberikan pengaruh yang nyata ( $P < 0,05$ ) terhadap kadar air telur asin.

➤ **Analisis Uji Jarak Berganda Duncan**

• **Perhitungan JNT 5%**

$$\begin{aligned} \text{UJBD}\alpha_{(2)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(2,10,0,05)} \sqrt{0,236/3} \\ &= 3,15 \sqrt{0,236/3} \\ &= 0,88 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(3)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(3,10,0,05)} \sqrt{0,236/3} \\ &= 3,30 \sqrt{0,236/3} \\ &= 0,92 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(4)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(4,10,0,05)} \sqrt{0,236/3} \\ &= 3,37 \sqrt{0,236/3} \\ &= 0,94 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(5)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(5,10,0,05)} \sqrt{0,236/3} \\ &= 3,43 \sqrt{0,236/3} \\ &= 0,96 \end{aligned}$$

**Tabel Nilai Kritis UJBD 5%**

| <b>P</b>                       | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|--------------------------------|----------|----------|----------|----------|
| <b>Nilai Jarak R (5,10,1%)</b> | 3,15     | 3,30     | 3,37     | 3,43     |
| <b>Nilai UJBD 5%</b>           | 0,88     | 0,92     | 0,94     | 0,96     |



**Tabel Kodifikasi**

| <b>Perlakuan</b> | <b>Rataan</b> | <b>Notasi</b> |
|------------------|---------------|---------------|
| <b>P4</b>        | 83,85         | a             |
| <b>P3</b>        | 84,29         | ab            |
| <b>P2</b>        | 84,65         | abc           |
| <b>P1</b>        | 85,02         | bc            |
| <b>P0</b>        | 85,34         | c             |

**Lampiran 6. Data dan Analisis Statistik Aktivitas Air  
Telur Asin dengan Penambahan Daun Kenikir  
(*Cosmos caudatus*)**

**a. Hasil Pengamatan**

| Perlakuan<br>(t) | Ulangan (r) |       |       | Jumlah | Rataan | SD    |
|------------------|-------------|-------|-------|--------|--------|-------|
|                  | 1           | 2     | 3     |        |        |       |
| <b>P0</b>        | 0,968       | 0,974 | 0,966 | 2,908  | 0,969  | 0,004 |
| <b>P1</b>        | 0,961       | 0,967 | 0,963 | 2,891  | 0,964  | 0,003 |
| <b>P2</b>        | 0,958       | 0,967 | 0,961 | 2,886  | 0,962  | 0,005 |
| <b>P3</b>        | 0,967       | 0,959 | 0,958 | 2,884  | 0,961  | 0,005 |
| <b>P4</b>        | 0,964       | 0,957 | 0,957 | 2,878  | 0,959  | 0,004 |
| <b>Jumlah</b>    |             |       |       | 14,447 |        |       |

➤ **Uji Rancangan Acak Lengkap**

• **Faktor Koreksi (FK)**

$$\begin{aligned}
 FK &= (\sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij})^2 / t \cdot r \\
 &= (14,447)^2 / 5 \times 3 \\
 &= 13,91439
 \end{aligned}$$

• **Jumlah Kuadrat (JK)**

$$\begin{aligned}
 JK_{\text{Total}} &= \sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij}^2 - FK \\
 &= (0,968^2 + 0,974^2 + \dots + 0,957^2) - 13,91439 \\
 &= 13,91474 - 13,91439 \\
 &= 0,00035
 \end{aligned}$$

$$\begin{aligned}
 JK_{\text{Perlakuan}} &= \sum_{i=1}^t \cdot (\sum_{j=1}^r Y_{ij})^2 / r - FK \\
 &= (2,91^2 + \dots + 2,88^2) / 3 - 13,91439 \\
 &= 13,91456 - 13,91439 \\
 &= 0,00017
 \end{aligned}$$

$$\begin{aligned}
 JK_{\text{Galat}} &= JK_{\text{Total}} - JK_{\text{Perlakuan}} \\
 &= 0,00035 - 0,00017 \\
 &= 0,00018
 \end{aligned}$$

- **Kuadrat Tengah (KT)**

$$\begin{aligned}
 KT_{\text{Perlakuan}} &= JK_{\text{Perlakuan}}/dB_{\text{Perlakuan}} \\
 &= 0,00017/(t-1) \\
 &= 0,00017/(5-1) \\
 &= 0,000043
 \end{aligned}$$

$$\begin{aligned}
 KT_{\text{Galat}} &= JK_{\text{Galat}}/dB_{\text{Galat}} \\
 &= 0,00018/t(r-1) \\
 &= 0,00018/5(3-1) \\
 &= 0,000018
 \end{aligned}$$

$$\begin{aligned}
 F_{\text{Hitung}} &= KT_{\text{Perlakuan}}/KT_{\text{Galat}} \\
 &= 0,000043/0,000018 \\
 &= 2,449
 \end{aligned}$$

**Tabel Analisis Ragam**

| SK               | dB | JK      | KT       | F Hitung | F 0,05 | F 0,01 |
|------------------|----|---------|----------|----------|--------|--------|
| <b>Perlakuan</b> | 4  | 0,00017 | 0,000043 | 2,449    | 3,478  | 5,994  |
| <b>Galat</b>     | 10 | 0,00018 | 0,000018 |          |        |        |
| <b>Total</b>     | 14 | 0,00035 |          |          |        |        |

Keterangan:  $F_{\text{Hitung}} > F_{\text{Tabel}} (0,05)$ , maka penggunaan daun kenikir tidak memberikan pengaruh yang nyata ( $P > 0,05$ ) terhadap aktivitas air telur asin.

**Lampiran 7. Data dan Analisis Statistik Warna L\* Telur Asin dengan Penambahan Daun Kenikir (*Cosmos caudatus*)**

**a. Hasil Pengamatan**

| Perlakuan<br>(t) | Ulangan (r) |       |       | Jumlah | Rataan | SD   |
|------------------|-------------|-------|-------|--------|--------|------|
|                  | 1           | 2     | 3     |        |        |      |
| <b>P0</b>        | 56,40       | 56,90 | 56,30 | 169,60 | 56,53  | 0,32 |
| <b>P1</b>        | 56,40       | 56,50 | 56,20 | 169,10 | 56,37  | 0,15 |
| <b>P2</b>        | 55,30       | 56,00 | 55,70 | 167,00 | 55,67  | 0,35 |
| <b>P3</b>        | 54,10       | 54,40 | 54,30 | 162,80 | 54,27  | 0,15 |
| <b>P4</b>        | 52,90       | 52,40 | 52,30 | 157,60 | 52,53  | 0,32 |
| <b>Jumlah</b>    |             |       |       | 826,10 |        |      |

➤ **Uji Rancangan Acak Lengkap**

• **Faktor Koreksi (FK)**

$$\begin{aligned}
 FK &= (\sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij})^2 / t \cdot r \\
 &= (826,10)^2 / 5 \times 3 \\
 &= 45496,081
 \end{aligned}$$

• **Jumlah Kuadrat (JK)**

$$\begin{aligned}
 JK_{\text{Total}} &= \sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij}^2 - FK \\
 &= (56,40^2 + 56,90^2 + \dots + 52,30^2) - 45496,081 \\
 &= 45530,610 - 45496,081 \\
 &= 34,529
 \end{aligned}$$

$$\begin{aligned}
 JK_{\text{Perlakuan}} &= \sum_{i=1}^t \cdot (\sum_{j=1}^r Y_{ij})^2 / r - FK \\
 &= (169,60^2 + \dots + 157,60^2) / 3 - 45496,081 \\
 &= 45529,857 - 45496,081 \\
 &= 33,776
 \end{aligned}$$

$$\begin{aligned}
 JK_{\text{Galat}} &= JK_{\text{Total}} - JK_{\text{Perlakuan}} \\
 &= 34,529 - 33,776 \\
 &= 0,753
 \end{aligned}$$

- **Kuadrat Tengah (KT)**

$$\begin{aligned}
 KT_{\text{Perlakuan}} &= JK_{\text{Perlakuan}}/dB_{\text{Perlakuan}} \\
 &= 33,776/(t-1) \\
 &= 33,776/(5-1) \\
 &= 8,444
 \end{aligned}$$

$$\begin{aligned}
 KT_{\text{Galat}} &= JK_{\text{Galat}}/dB_{\text{Galat}} \\
 &= 0,753/t(r-1) \\
 &= 0,753/5(3-1) \\
 &= 0,075
 \end{aligned}$$

$$\begin{aligned}
 F_{\text{Hitung}} &= KT_{\text{Perlakuan}}/KT_{\text{Galat}} \\
 &= 8,444/0,075 \\
 &= 112,088
 \end{aligned}$$

**Tabel Analisis Ragam**

| SK               | dB | JK     | KT    | F Hitung  | F 0,05 | F 0,01 |
|------------------|----|--------|-------|-----------|--------|--------|
| <b>Perlakuan</b> | 4  | 33,776 | 8,444 | 112,088** | 3,478  | 5,994  |
| <b>Galat</b>     | 10 | 0,753  | 0,075 |           |        |        |
| <b>Total</b>     | 14 | 34,529 |       |           |        |        |

Keterangan: F Hitung > F Tabel (0,01), maka penggunaan daun kenikir memberikan pengaruh yang sangat nyata ( $P < 0,01$ ) terhadap warna L\* telur asin.

➤ **Analisis Uji Jarak Berganda Duncan**

• **Perhitungan JNT 1%**

$$\begin{aligned} \text{UJBD}\alpha_{(2)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(2,10,0,01)} \sqrt{0,075/3} \\ &= 4,48 \sqrt{0,075/3} \\ &= 0,71 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(3)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(3,10,0,01)} \sqrt{0,075/3} \\ &= 4,73 \sqrt{0,075/3} \\ &= 0,75 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(4)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(4,10,0,01)} \sqrt{0,075/3} \\ &= 4,88 \sqrt{0,254/3} \\ &= 0,77 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(5)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(5,10,0,01)} \sqrt{0,075/3} \\ &= 4,96 \sqrt{0,075/3} \\ &= 0,78 \end{aligned}$$

**Tabel Nilai Kritis UJBD 1%**

| <b>P</b>                       | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|--------------------------------|----------|----------|----------|----------|
| <b>Nilai Jarak R (5,10,1%)</b> | 4,48     | 4,73     | 4,88     | 4,96     |
| <b>Nilai UJBD 1%</b>           | 0,71     | 0,75     | 0,77     | 0,78     |

**Tabel Kodifikasi**

| <b>Perlakuan</b> | <b>Rataan</b> | <b>Notasi</b> |
|------------------|---------------|---------------|
| <b>P4</b>        | 52,53         | a             |
| <b>P3</b>        | 54,27         | b             |
| <b>P2</b>        | 55,67         | c             |
| <b>P1</b>        | 56,37         | cd            |
| <b>P0</b>        | 56,53         | d             |

**Lampiran 8. Data dan Analisis Statistik Warna a\* Telur Asin dengan Penambahan Daun Kenikir (*Cosmos caudatus*)**

**a. Hasil Pengamatan**

| Perlakuan<br>(t) | Ulangan (r) |       |       | Jumlah | Rataan | SD   |
|------------------|-------------|-------|-------|--------|--------|------|
|                  | 1           | 2     | 3     |        |        |      |
| <b>P0</b>        | 17,30       | 17,40 | 17,50 | 52,20  | 17,40  | 0,10 |
| <b>P1</b>        | 17,10       | 17,30 | 17,50 | 51,90  | 17,30  | 0,20 |
| <b>P2</b>        | 17,00       | 16,80 | 16,50 | 50,30  | 16,77  | 0,25 |
| <b>P3</b>        | 15,40       | 17,30 | 16,40 | 49,10  | 16,37  | 0,95 |
| <b>P4</b>        | 15,50       | 16,10 | 16,70 | 48,30  | 16,10  | 0,60 |
| <b>Jumlah</b>    |             |       |       | 251,80 |        |      |

➤ **Uji Rancangan Acak Lengkap**

• **Faktor Koreksi (FK)**

$$\begin{aligned}
 FK &= (\sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij})^2 / t \cdot r \\
 &= (251,80)^2 / 5 \times 3 \\
 &= 4226,883
 \end{aligned}$$

• **Jumlah Kuadrat (JK)**

$$\begin{aligned}
 JK_{\text{Total}} &= \sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij}^2 - FK \\
 &= (17,30^2 + 17,40^2 + \dots + 16,70^2) - 4226,883 \\
 &= 4233,500 - 4226,883 \\
 &= 6,617
 \end{aligned}$$

$$\begin{aligned}
 JK_{\text{Perlakuan}} &= \sum_{i=1}^t (\sum_{j=1}^r Y_{ij})^2 / r - FK \\
 &= (52,20^2 + \dots + 48,30^2) / 3 - 4226,883 \\
 &= 4230,747 - 4226,883 \\
 &= 3,864
 \end{aligned}$$



$$\begin{aligned}
 JK_{\text{Galat}} &= JK_{\text{Total}} - JK_{\text{Perlakuan}} \\
 &= 6,617 - 3,864 \\
 &= 2,753
 \end{aligned}$$

- **Kuadrat Tengah (KT)**

$$\begin{aligned}
 KT_{\text{Perlakuan}} &= JK_{\text{Perlakuan}}/dB_{\text{Perlakuan}} \\
 &= 3,864/(t-1) \\
 &= 3,864/(5-1) \\
 &= 0,966
 \end{aligned}$$

$$\begin{aligned}
 KT_{\text{Galat}} &= JK_{\text{Galat}}/dB_{\text{Galat}} \\
 &= 2,753/t(r-1) \\
 &= 2,753/5(3-1) \\
 &= 0,275
 \end{aligned}$$

$$\begin{aligned}
 F_{\text{Hitung}} &= KT_{\text{Perlakuan}}/KT_{\text{Galat}} \\
 &= 0,966/0,275 \\
 &= 3,508
 \end{aligned}$$

**Tabel Analisis Ragam**

| SK        | dB | JK    | KT    | F Hitung | F 0,05 | F 0,01 |
|-----------|----|-------|-------|----------|--------|--------|
| Perlakuan | 4  | 3,864 | 0,966 | 3,508*   | 3,478  | 5,994  |
| Galat     | 10 | 2,753 | 0,275 |          |        |        |
| Total     | 14 | 6,617 |       |          |        |        |

Keterangan: F Hitung > F Tabel (0,05), maka penggunaan daun kenikir memberikan pengaruh yang nyata ( $P < 0,05$ ) terhadap warna a\* telur asin.

➤ **Analisis Uji Jarak Berganda Duncan**

• **Perhitungan JNT 5%**

$$\begin{aligned} \text{UJBD}\alpha_{(2)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(2,10,0,05)} \sqrt{0,275/3} \\ &= 3,15 \sqrt{0,275/3} \\ &= 0,95 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(3)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(3,10,0,05)} \sqrt{0,275/3} \\ &= 3,30 \sqrt{0,275/3} \\ &= 1,00 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(4)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(4,10,0,05)} \sqrt{0,275/3} \\ &= 3,37 \sqrt{0,275/3} \\ &= 1,02 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(5)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(5,10,0,05)} \sqrt{0,275/3} \\ &= 3,43 \sqrt{0,275/3} \\ &= 1,04 \end{aligned}$$

**Tabel Nilai Kritis UJBD 5%**

| <b>P</b>                       | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|--------------------------------|----------|----------|----------|----------|
| <b>Nilai Jarak R (5,10,1%)</b> | 3,15     | 3,30     | 3,37     | 3,43     |
| <b>Nilai UJBD 5%</b>           | 0,95     | 1,00     | 1,02     | 1,04     |

**Tabel Kodifikasi**

| <b>Perlakuan</b> | <b>Rataan</b> | <b>Notasi</b> |
|------------------|---------------|---------------|
| <b>P4</b>        | 16,10         | a             |
| <b>P3</b>        | 16,37         | ab            |
| <b>P2</b>        | 16,77         | abc           |
| <b>P1</b>        | 17,30         | bc            |
| <b>P0</b>        | 17,40         | c             |

**Lampiran 9. Data dan Analisis Statistik Warna b\* Telur Asin dengan Penambahan Daun Kenikir (*Cosmos caudatus*)**

**a. Hasil Pengamatan**

| Perlakuan<br>(t) | Ulangan (r) |       |       | Jumlah | Rataan | SD   |
|------------------|-------------|-------|-------|--------|--------|------|
|                  | 1           | 2     | 3     |        |        |      |
| <b>P0</b>        | 29,40       | 29,10 | 29,60 | 88,10  | 29,37  | 0,25 |
| <b>P1</b>        | 29,10       | 29,00 | 29,60 | 87,70  | 29,23  | 0,32 |
| <b>P2</b>        | 28,10       | 27,70 | 27,20 | 83,00  | 27,67  | 0,45 |
| <b>P3</b>        | 23,80       | 23,10 | 23,30 | 70,20  | 23,40  | 0,36 |
| <b>P4</b>        | 20,50       | 20,60 | 20,00 | 61,10  | 20,37  | 0,32 |
| <b>Jumlah</b>    |             |       |       | 390,10 |        |      |

➤ **Uji Rancangan Acak Lengkap**

• **Faktor Koreksi (FK)**

$$\begin{aligned}
 FK &= (\sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij})^2 / t \cdot r \\
 &= (390,10)^2 / 5 \times 3 \\
 &= 10145,201
 \end{aligned}$$

• **Jumlah Kuadrat (JK)**

$$\begin{aligned}
 JK_{\text{Total}} &= \sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij}^2 - FK \\
 &= (29,40^2 + 29,10^2 + \dots + 29,60^2) - 10145,201 \\
 &= 10335,590 - 10145,201 \\
 &= 190,389
 \end{aligned}$$

$$\begin{aligned}
 JK_{\text{Perlakuan}} &= \sum_{i=1}^t (\sum_{j=1}^r Y_{ij})^2 / r - FK \\
 &= (88,10^2 + \dots + 61,10^2) / 3 - 10145,201 \\
 &= 10334,383 - 10145,201 \\
 &= 189,183
 \end{aligned}$$

$$\begin{aligned}
 JK_{\text{Galat}} &= JK_{\text{Total}} - JK_{\text{Perlakuan}} \\
 &= 190,389 - 189,183 \\
 &= 1,207
 \end{aligned}$$

- **Kuadrat Tengah (KT)**

$$\begin{aligned}
 KT_{\text{Perlakuan}} &= JK_{\text{Perlakuan}}/dB_{\text{Perlakuan}} \\
 &= 189,183/(t-1) \\
 &= 189,183/(5-1) \\
 &= 47,296
 \end{aligned}$$

$$\begin{aligned}
 KT_{\text{Galat}} &= JK_{\text{Galat}}/dB_{\text{Galat}} \\
 &= 1,207/t(r-1) \\
 &= 1,207/5(3-1) \\
 &= 0,121
 \end{aligned}$$

$$\begin{aligned}
 F_{\text{Hitung}} &= KT_{\text{Perlakuan}}/KT_{\text{Galat}} \\
 &= 47,296/0,121 \\
 &= 391,953
 \end{aligned}$$

**Tabel Analisis Ragam**

| SK               | dB | JK      | KT     | F Hitung  | F 0,05 | F 0,01 |
|------------------|----|---------|--------|-----------|--------|--------|
| <b>Perlakuan</b> | 4  | 189,183 | 47,296 | 391,953** | 3,478  | 5,994  |
| <b>Galat</b>     | 10 | 1,207   | 0,121  |           |        |        |
| <b>Total</b>     | 14 | 190,389 |        |           |        |        |

Keterangan: F Hitung > F Tabel (0,01), maka penggunaan daun kenikir memberikan pengaruh yang sangat nyata ( $P < 0,01$ ) terhadap warna b\* telur asin.

➤ **Analisis Uji Jarak Berganda Duncan**

• **Perhitungan JNT 1%**

$$\begin{aligned}
 \text{UJBD}\alpha_{(2)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\
 &= q_{(2,10,0,01)} \sqrt{0,121/3} \\
 &= 4,48 \sqrt{0,121/3} \\
 &= 0,90
 \end{aligned}$$

$$\begin{aligned}
 \text{UJBD}\alpha_{(3)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\
 &= q_{(3,10,0,01)} \sqrt{0,121/3} \\
 &= 4,73 \sqrt{0,121/3} \\
 &= 0,95
 \end{aligned}$$

$$\begin{aligned}
 \text{UJBD}\alpha_{(4)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\
 &= q_{(4,10,0,01)} \sqrt{0,121/3} \\
 &= 4,88 \sqrt{0,121/3} \\
 &= 0,98
 \end{aligned}$$

$$\begin{aligned}
 \text{UJBD}\alpha_{(5)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\
 &= q_{(5,10,0,01)} \sqrt{0,121/3} \\
 &= 4,96 \sqrt{0,121/3} \\
 &= 1,00
 \end{aligned}$$

**Tabel Nilai Kritis UJBD 1%**

| <b>P</b>                       | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|--------------------------------|----------|----------|----------|----------|
| <b>Nilai Jarak R (5,10,1%)</b> | 4,48     | 4,73     | 4,88     | 4,96     |
| <b>Nilai UJBD 1%</b>           | 0,90     | 0,95     | 0,98     | 1,00     |

**Tabel Kodifikasi**

| <b>Perlakuan</b> | <b>Rataan</b> | <b>Notasi</b> |
|------------------|---------------|---------------|
| <b>P4</b>        | 20,37         | a             |
| <b>P3</b>        | 23,40         | b             |
| <b>P2</b>        | 27,67         | c             |
| <b>P1</b>        | 29,23         | d             |
| <b>P0</b>        | 29,37         | d             |

**Lampiran 10. Data dan Analisis Statistik Aktivitas Antioksidan Telur Asin dengan Penambahan Daun Kenikir (*Cosmos caudatus*)**

**a. Hasil Pengamatan**

| Perlakuan<br>(t) | Ulangan (r) |        |        | Jumlah  | Rataan | SD   |
|------------------|-------------|--------|--------|---------|--------|------|
|                  | 1           | 2      | 3      |         |        |      |
| P0               | 410,33      | 410,37 | 411,08 | 1231,78 | 410,59 | 0,42 |
| P1               | 277,53      | 278,22 | 278,15 | 833,90  | 277,97 | 0,38 |
| P2               | 265,40      | 264,60 | 264,73 | 794,73  | 264,91 | 0,43 |
| P3               | 260,62      | 260,77 | 259,97 | 781,36  | 260,45 | 0,43 |
| P4               | 259,21      | 259,75 | 259,14 | 778,10  | 259,37 | 0,33 |
| Jumlah           |             |        |        | 4419,87 |        |      |

➤ **Uji Rancangan Acak Lengkap**

• **Faktor Koreksi (FK)**

$$\begin{aligned}
 FK &= (\sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij})^2 / t \cdot r \\
 &= (4419,87)^2 / 5 \times 3 \\
 &= 1302350,054
 \end{aligned}$$

• **Jumlah Kuadrat (JK)**

$$\begin{aligned}
 JK_{\text{Total}} &= \sum_{i=1}^t \cdot \sum_{j=1}^r Y_{ij}^2 - FK \\
 &= (410,33^2 + 410,37^2 + \dots + 259,14^2) - 1302350,054 \\
 &= 1353411,601 - 1302350,054 \\
 &= 51061,547
 \end{aligned}$$

$$\begin{aligned}
 JK_{\text{Perlakuan}} &= \sum_{i=1}^t (\sum_{j=1}^r Y_{ij})^2 / r - FK \\
 &= (1231,78^2 + \dots + 778,10^2) / 3 - 1302350,054 \\
 &= 1353410,004 - 1302350,054 \\
 &= 51059,949
 \end{aligned}$$



$$\begin{aligned}
 JK_{\text{Galat}} &= JK_{\text{Total}} - JK_{\text{Perlakuan}} \\
 &= 51061,547 - 51059,949 \\
 &= 1,598
 \end{aligned}$$

- **Kuadrat Tengah (KT)**

$$\begin{aligned}
 KT_{\text{Perlakuan}} &= JK_{\text{Perlakuan}}/dB_{\text{Perlakuan}} \\
 &= 51059,949/(t-1) \\
 &= 51059,949/(5-1) \\
 &= 12764,987
 \end{aligned}$$

$$\begin{aligned}
 KT_{\text{Galat}} &= JK_{\text{Galat}}/dB_{\text{Galat}} \\
 &= 1,598/t(r-1) \\
 &= 1,598/5(3-1) \\
 &= 0,160
 \end{aligned}$$

$$\begin{aligned}
 F_{\text{Hitung}} &= KT_{\text{Perlakuan}}/KT_{\text{Galat}} \\
 &= 12764,987/0,160 \\
 &= 79897,688
 \end{aligned}$$

**Tabel Analisis Ragam**

| SK        | dB | JK        | KT        | F Hitung    | F<br>0,05 | F<br>0,01 |
|-----------|----|-----------|-----------|-------------|-----------|-----------|
| Perlakuan | 4  | 51059,949 | 12764,987 | 79897,688** | 3,478     | 5,994     |
| Galat     | 10 | 1,598     | 0,160     |             |           |           |
| Total     | 14 | 51061,547 |           |             |           |           |

Keterangan: F Hitung > F Tabel (0,01), maka penggunaan daun kenikir memberikan pengaruh yang sangat nyata ( $P < 0,01$ ) terhadap aktivitas antioksidan telur asin.

➤ **Analisis Uji Jarak Berganda Duncan**

• **Perhitungan JNT 1%**

$$\begin{aligned} \text{UJBD}\alpha_{(2)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(2,10,0,01)} \sqrt{0,160/3} \\ &= 4,48 \sqrt{0,160/3} \\ &= 1,03 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(3)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(3,10,0,01)} \sqrt{0,160/3} \\ &= 4,73 \sqrt{0,160/3} \\ &= 1,09 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(4)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(4,10,0,01)} \sqrt{0,160/3} \\ &= 4,88 \sqrt{0,160/3} \\ &= 1,13 \end{aligned}$$

$$\begin{aligned} \text{UJBD}\alpha_{(5)} &= R_{(p,v,\alpha)} \sqrt{\frac{KT_{Galat}}{r}} \\ &= q_{(5,10,0,01)} \sqrt{0,160/3} \\ &= 4,96 \sqrt{0,160/3} \\ &= 1,16 \end{aligned}$$

**Tabel Nilai Kritis UJBD 1%**

| <b>P</b>                       | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|--------------------------------|----------|----------|----------|----------|
| <b>Nilai Jarak R (5,10,1%)</b> | 4,48     | 4,73     | 4,88     | 4,96     |
| <b>Nilai UJBD 1%</b>           | 1,03     | 1,09     | 1,13     | 1,15     |

**Tabel Kodifikasi**

| <b>Perlakuan</b> | <b>Rataan</b> | <b>Notasi</b> |
|------------------|---------------|---------------|
| P4               | 259,37        | a             |
| P3               | 260,45        | b             |
| P2               | 264,91        | c             |
| P1               | 277,97        | d             |
| P0               | 410,59        | e             |

## Lampiran 11. Dokumentasi

### a) Alat dan Bahan Pembuatan Telur Asin Dengan Penambahan Daun Kenikir



Blender



Amplas



Takaran Air



Wadah



Toples



Kompor



Tabung Gas



Plastik



Serbet



Timbangan



Telur itik



Daun kenikir



Garam kasar



Batu bata

**b. Proses Pembuatan Telur Asin Dengan Penambahan Daun Kenikir**

